

Amendments to the Claims

Listing of Claims

This Listing of Claims shall replace all prior versions and listings of claims in the application.

1-34. (Cancelled).

35. (New) A method for isolating nucleic acids from a solution by binding to a solid phase comprising the steps of:

- a. providing a solution containing at least one nucleic acid;
- b. combining said solution with additives containing multivalent cations and monovalent cations;
- c. optionally combining said solution with an alcohol;
- d. providing a solid carrier;
- e. contacting said solution with said carrier and binding said at least one nucleic acid to said carrier;
- f. removing said nucleic acid from said carrier using a washing buffer, wherein said washing buffer has a pH between 5 and 10 and:
 - i. does not comprise alcohol; or
 - ii. comprises an alcohol and at least one monovalent and/or multivalent cation.

36. (New) The method of claim 35, wherein said multivalent and/or monovalent cations in said washing buffer are metallic cations.

37. (New) The method of claim 35, wherein the ratio of monovalent cation to said multivalent cation is between about 9:1 to about 1:9.

38. (New) The method of claim 35, wherein the final concentration of the salt components in solution is greater than 5 mMol.

39. (New) The method of claim 35, wherein said alcohol is selected from the group consisting of ethanol or isopropanol.

40. (New) The method of claim 35, further comprising addition of tris-HCl, or polyvinylpyrrolidone to the solution containing at least one nucleic acid.

41. (New) The method of claim 35, wherein all carrier materials used to isolate chaotropic reagents are solid phase materials.

42. (New) The method of claim 41, wherein said carrier materials are selected from the group consisting of glass fiber fleeces, silica membranes, or membranes with functional groups that are equivalent to those on glass fiber fleeces or silica membranes, (SiO₂ suspensions, aerosols, and magnetized silica particles.

43. (New) The method of claim 35, wherein said monovalent and multivalent salt components are present in ionically weak solutions.

44. (New) The method of claim 35, further comprising the use of at least one member of the group consisting of water or water and tris-HCl is used as an elution buffer.

45. (New) The method of claim 35, wherein said multivalent cations are divalent cations.

46. (New) The method of claim 35, wherein said multivalent cations are Mg²⁺, Ca²⁺, Zn²⁺ or Mn²⁺.

47. (New) The method of claim 35, wherein said monovalent cations are selected from the group consisting of NH_4^+ , Na^+ , or K^+ .

48. (New) The method of claim 35, wherein the final concentration of salt components is > 5 mMol.

49. (New) The method of claim 35, wherein said alcohol is selected from the group consisting of ethanol, isopropanol, polyethylene glycol, and mixtures of the same.

50. (New) The method of claim 35, wherein the pH value of the binding buffer is adjusted with tris-HCl.

51. (New) The method of claim 47, wherein the pH value of the binding buffer without alcohol additive is between 8.5-9.5.

52. (New) The method of claim 35, wherein the pH value of the binding buffer with alcohol additive is 5-9.5.

53. (New) A test kit to isolate DNA from any base materials comprising:

- a. an aqueous solution comprising monovalent and/or multivalent cations;
- b. optionally, an alcohol;
- c. optionally, a buffer;
- d. a solid carrier produced centrifuge tube, wherein said solid carrier may be 96 or 384-gauged corrugated filtration plates;
- e. washing buffer; and
- f. elution buffer.

54. The test kit of claim 53, wherein said solid phase is selected from the group consisting of glass fiber fleece, glass membrane, silicon carrier, silicon dioxide, cut silicic acid, pyrogenous acid, magnetic silica particles, a membrane with functional groups and aerosol.

55. A test kit to isolate DNA from base materials comprising:
- a. an aqueous solution comprising monovalent and multivalent cations, wherein said multivalent cations are divalent cations;
 - b. a solid phase, wherein said solid phase is a centrifuge tube component of 96 or 384-gauged corrugated filtration plates;
 - c. washing buffer, wherein said washing buffer does not comprise alcohol; and
 - d. elution buffer, wherein said elution buffer does not comprise alcohol.

56. The test kit of claim 55, wherein said solid phase is selected from the group consisting of glass fiber fleece, glass membrane, silicon carrier, aerosol, silicon dioxide, cut silicic acid, pyrogenous acid, magnetic silica particles and membranes with functional groups.